ERIC Document Resume	See Instruction Sheet	DATE OF RESUME 7/21/65	DATE RECEIVED

A. PUBLICATION DATA

1. ERIC NUMBER	2. ORIGINATOR CONTROL NO(S).	3. IDENTIFICATION NO.
ED001346	N.A.	N.A.

DO NOT WRITE IN SPACE BELOW

4. AUTHOR(S):
Zigler, Edward

5. TITLE OF DOCUMENT ABSTRACTED:
Motivational Determinants in the Performance of Retarded Children

6. PUBLICATION TITLE:
N.A.

7. EDITOR(S):
N.A.

8. PLACE OF ORIGIN
ORG. Yale University, New Haven, Connecticut
ST.
CITY, STATE

9. PUBLISHER OR SOURCE
Yale University
New Haven, Connecticut

TELE. EXT.
INST/LOC CODE

10. VOL.	11. PAGES	12. MO./YR.	13. TOTAL PP.
N.A.	N.A.	N.A.	22

MICROFILM COPY AVAILABLE
YES ☒ NO ☐

COPYRIGHT GRANTED
YES ☐ NO ☒

COPYRIGHT RELEASE FILED
YES ☐ NO ☐

TYPE OF REPORT
PROPOSAL ☐
IN-PROGRESS ☐
FINAL ☒
FOLLOW-UP ☐

OTHER ERIC REFERENCES:

ERIC SATELLITE CODE

B. INDEXING DATA

14. SUBJECT AREA

15. TYPE OF ENDEAVOR
report

16. INDEXING TERMS (6-12)
retarded children
institutional environment
motivational research
behavior pattern
student attitudes

17. ABSTRACT (MAX. 250 WORDS)

Many of the reported behavioral differences between familial retardates and normal children of the same motor ability are products of a variety of differences in motivation rather than permanent effects of mental retardation itself. Many researchers, however, have taken the position that mental retardates are inherently "different." This is a misconception. A performance on experimental tasks involves both cognitive and emotional factors. The part played by differences in histories of normal and familial-retarded children in producing differences in performance was investigated.

Several studies are summarized. Institutionalized, retarded children, relatively deprived of adult contact and approval, have a higher motivation to secure such contact and approval than do normal children. Because of their environment, institutionalized, retarded children react differently to behavior reinforcement patterns than do normal children. They also have learned to expect, and settle for, lower degrees of success than have normal children.

ERIC No.

18. SOURCE OF ABSTRACT

C. FUNDING DATA

19. SUPPORTING ORGANIZATION	20. DIVISION OR DEPT.	21. CONTRACT NO. / PROJECT NO.
	22. TOTAL COST OF PROJECT	
	23. DURATION OF PROJECT	U.S. Department of Health, Education, and Welfare Office of Education

ERIC Form 1

.000978
file: ~~Preschool~~ Mental Health & Retard.
Please Return To:
CLEARINGHOUSE
CENTER FOR RESEARCH AND DEVELOPMENT
ON EDUCATIONAL DIFFERENCES
HARVARD GRADUATE SCHOOL OF EDUCATION
CAMBRIDGE, MASSACHUSETTS 02138

ED001346

Motivational Determinants in the Performance of Retarded Children[1]

Edward Zigler

Yale University

It has long been my view that many of the reported behavioral differences between familial retardates and normal children of the same MA are a product of a variety of differences in the motivational systems of these two types of children rather than being related to the immutable effects of mental retardation itself. It has become increasingly popular for theoreticians to conceptualize the familial retardate as pursuing not only a slower and more limited course of cognitive development but to be suffering from a variety of specific physiological or quasi-organismic defects as well. Indeed, a plethora of such defects have now been postulated. Thus, we have been informed that the retardates suffer from a relative impermeability of the boundaries between regions in the cognitive structure (Kounin, 1941; Lewin, 1936); primary and secondary rigidity caused by subcortical and cortical malformations, respectively (Goldstein, 1943); inadequate neural satiation related to brain modifiability or cortical conductivity (Spitz, 1963); impaired attention-directing mechanisms (Zeaman, 1959); a relative brevity in the persistence of the stimulus trace (Ellis, 1963); malfunctioning disinhibitory mechanisms (Siegel & Foshee, 1960); and improper development of the verbal system resulting in a dissociation between the verbal and motor systems (Luria, 1956; O'Connor & Hermelin, 1959).

Postulating such defects has given rise to what I have referred to as the difference orientation. That is, the retardate is viewed as being inherently "different." This difference orientation receives its most vivid expression in those comparative studies where mental retardates are conceptualized as occupying

REPRINTED BY PERMISSION
U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN PRINTED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

a position on the phylogenetic scale somewhere between monkeys, on the one hand, and children of average intellect, on the other. It should be noted that in respect to the familial retardate, no "hard" physiological evidence, at least of a convincing type, has been found indicating the presence of any of the defects noted above. Rather, these defects have been postulated on the basis of differences in performance between retardates and normals on some type of experimental task. An implicit assumption in much of this work has been that performance on such tasks is an inexorable product of the cognitive structure or intellectual level. I do not believe this to be the case. Performance on many, if not all experimental tasks, is most appropriately conceptualized as a multiply determined phenomenon, influenced by both cognitive or intellective factors and motivational or emotional factors.

I am, of course, aware that a division between cognitive and emotional factors is in many ways an artificial one. However, in most of our work these two factors have been sufficiently orthogonal for us to demonstrate how each may be independently affecting the child's performance. Motivational differences between normal and retarded children, which are themselves the result of differences in environmental histories, must be ruled out before any difference in performance can be considered prima facie evidence in support of a defect position. Over the years, then, our goal has been to discover the part played by the differences in the experiential histories of normal and familial retarded children in producing the differences in performance so frequently noted in the performance of normals and retardates of the same MA.

Our initial research efforts can be directly traced to perhaps the most influential and widely accepted of the defect positions; namely, the cognitive rigidity formulation of Kurt Lewin (1936) and Jacob Kounin (1941). Lewin

initially advanced the view that as compared to normal children of the same degree of differentiation, i.e., MA, retardates were characterized by a lessened permeability in the boundaries between cognitive regions. This position was extended somewhat by Kounin who argued that the degree of permeability in these boundaries was a positive monotonic function of CA. This generated the prediction that with MA held constant, older retardates suffered from greater cognitive rigidity than younger retardates who in turn were more rigid than normal children. This general prediction was confirmed in a series of experiments in which it was found that retardates as compared to normals of the same MA spent more time on a simple persistence task, showed a lesser amount of transfer effects from task to task, and had more difficulty in switching from one concept to another when instructed to do so.

Stevenson and Zigler (1957) conducted a study designed to test the validity of the Lewin-Kounin formulation. Moving from the Lewin-Kounin postulate that the boundaries within the life space are more rigid in the feebleminded than in normals, Stevenson and Zigler hypothesized, "...that the solution of a reversal problem would require movement to a new region of the life space and that such movement would be more difficult for the feebleminded subject because of the more rigid boundaries separating the regions of the life space." As to the specific measure of rigidity in a reversal problem, Stevenson and Zigler chose as their measure the relative incidence of perseverative responses in which the subject continues during the solution of the second problem to make the response which was previously correct but is no longer appropriate.

Three groups of subjects were used, an older feebleminded group, a younger feebleminded group, and a group of normal children, with the groups being equated on MA. The results indicated a striking equivalence in performance among groups.

They did not differ significantly on the number of trials required to learn the initial discrimination problem; the number of correct choices on the reversal problem; the number of subjects in each group who learned the reversal problem; or on the key measure of rigidity employed; namely, the frequency with which subjects of each group made the response on the reversal problem which had been correct for them on the initial discrimination problem.

Stevenson and Zigler (1957) conducted a second study in which they employed a more difficult reversal problem. Here again they found no differences between normals and familial retardates of the same MA. In an effort to evaluate the disagreement of their findings with those of Kounin, Stevenson and Zigler advanced a motivational hypothesis to explain Kounin's findings. These investigators noted that in their experiments the subjects were required to learn two successive discriminations with minimal interaction with the experimenter, while in Kounin's tasks the response is made primarily on the basis of instructions. Thus differences in rigid behaviors between normal and feebleminded individuals of the same MA in the instruction-initiated task may be related to differences in the subjects' motivation to comply with instructions rather than to differences in cognitive rigidity. This hypothesis was based on the assumption that institutionalized feebleminded children tend to have been relatively deprived of adult contact and approval and hence have a higher motivation to procure such contact and approval than do normal children. This assumption appears congruent with the view advanced by other investigators that both institutionalized feebleminded and institutionalized normal individuals exhibit an increased desire to interact with adult figures (Clark, 1933; Sarason, 1953; Skeels, Updegraff, Wellman & Williams, 1938).

The first test of the motivational hypothesis was contained in a study by

Zigler, Hodgden and Stevenson (1958). Employing a number of simple instruction-initiated motor tasks and supportive and nonsupportive reinforcement conditions, Zigler et al., obtained findings confirming their hypothesis that interaction with an adult and adult approval provide a greater reinforcement for the responses of institutionalized feebleminded subjects than they do for those of normal subjects. The study of Zigler et al., thus lent support to the view that the reported differences in the incidence of "rigid" behaviors between normal and feebleminded individuals of the same MA are a function of the greater social deprivation experienced by the feebleminded rather than of their inherent rigidity.

The second test of this position was carried out by Zigler (1961) who employed the following reasoning: If the rigid behaviors found in feeble-minded subjects are a result of the social deprivation the subjects have experienced, then within a feebleminded population a relationship should exist between the degree of deprivation experienced and the amount of rigidity manifested. The specific hypothesis tested in this study was:

> The greater the amount of pre-institutional social deprivation experienced by the feebleminded child, the greater will be his motivation to interact with an adult, making such interaction and any adult approval or support that accompanies it more reinforcing for his responses than for the responses of a feebleminded child who has experienced a lesser amount of social deprivation.

The procedure employed in this study was that of allowing raters to evaluate the entire pre-institutional history of the child for degree of social deprivation. As predicted, a positive relationship was found between the amount of social deprivation and the time the child would spend playing a socially reinforced but simple and monotonous game. It thus appears that the persistence so frequently encountered in the retardate, rather than being a product of his inherent rigidity, can better be viewed as the behavioral manifestation of his

heightened motivation to secure attention and approval. The Zigler study provides direct evidence that this heightened motivation to interact with an attentive adult is related to the sizable amounts of pre-institutional social deprivation typically experienced by the institutionalized familial retardate. The social deprivation hypothesis received further confirmation in subsequent studies (Green & Zigler, 1962; Zigler, 1963) in which it was generally found that institutionalization rather than intellectual level determined how long children would spend on a simple game in order to obtain social reinforcement. Institutionalized children of normal intellect were also found to exhibit the perseverative behavior found in institutionalized retardates of the same MA. On the other hand, non-institutionalized retardates were found to be no more perseverative than their MA-matched normal controls.

That a child's perseveration may often reflect his motivation for social reinforcement and that this motivation is related to the amount of social deprivation experienced is now clear. What is not clear at this point is whether this greater social deprivation is to be attributed to institutionalization as such, to the fact that the pre-institutional environment of the institutionalized child is characterized by a relatively great amount of social deprivation, or to some interaction between these two factors.

While there is a clear consensus among social scientists that institutionalization produces social deprivation, I have come to the conclusion that institutionalization qua institutionalization is not a clear measure of social deprivation. There can be little doubt that the contemporary conditions of institutionalization must be a determinant of the child's current behavior. However, the results of such institutionalization are far from clear. A fact that has been rarely recognized is that institutionalization is not in itself

a psychological variable. At best it refers to a vague social status of the individual. In order to relate institutionalization to social deprivation, one must designate specific social interactions in the institution that give rise to particular behavioral propensities. Anyone who treats institutionalization as a homogeneous entity must be prepared to defend the proposition that critical social interactions are constant from institution to institution. But how can such a defense be made when there has been no systematic effort to discuss the psychological features, if any, that are common to all institutions. I concur with Sarason and Gladwin (1958) in their amazement that so little systematic work has been done in the investigation of the nature of institutionalization.

Especially relevant to the question of the effects of institutionalization on the performance of the retarded are the findings of a recent study by Butterfield and Zigler (in pressa). Matched groups of mentally retarded children from two institutions which differed markedly in their social climates were compared on a measure of their need for social reinforcement of two types, attention and attention plus verbal approval. Children from the more repressive, depriving institution were found to have a significantly higher motivation to obtain both types of reinforcement. Why, then, one might ask have fairly constant findings been reported when institutionalized children are compared with non-institutionalized children? What is the common feature of institutions that give rise to the findings? The answer may be that there is some highly significant factor that as yet is unspecified. If such is the case, then the foregoing discussion may be considered an appeal for cross-institutional investigation conducted for the purpose of isolating this factor. However, another possibility may be considered. Perhaps the commonality in the findings

of studies in which institutionalization is employed as a variable is due not to a common feature of institutions but instead to the fact that children who are institutionalized come from homes that present a common and relatively homogeneous psychological environment. The latter possibility suggests that it is the pre-institutional social deprivation experienced by the child that needs evaluation. Institutionalization should be analyzed for its particular psychological features and for its effects viewed as interacting with the effects of the pre-institutional psychological environment. Thus, one and the same institution would be viewed as having different effects on children whose pre-institutional histories differed.

Support for such a view is contained in a study by Zigler and Williams (1963). After an interval of three years, these investigators retested the children employed by Zigler (1961) and discovered that with this increased length of institutionalization, the motivation for social reinforcement of all of the children had increased. However, the increase between the two testings in motivation for social reinforcers was related to the amount of pre-institutional deprivation experienced. Children coming from relatively good homes evidenced a much greater increase in their motivation for social reinforcers than did children coming from more socially deprived homes. It thus appears that the general motivational effects of institutionalization depend on the pre-institutiona history of the child, with such institutionalization being more socially depriving for children from relatively good homes than for children who had come from homes characterized by a considerable amount of social deprivation.

Although the atypically high motivation for social reinforcement, stemming from social deprivation, appears to be an important factor in the performance of institutionalized retardates, this factor alone cannot account for all of

the behavioral differences that have been reported in comparisons of retardates and normals of the same MA. A recurring theme in my work has been the necessity for appreciating the complexity of the retarded individual. It has certainly not been my goal to replace the view that the retardate is to be understood in terms of some single physiological or quasi-organismic defect with the view that the retardate is to be best understood in terms of some single motivational factor. A factor completely antithetical to the retardate's increased desire for social reinforcement (a phenomenon the author labeled the positive-reaction tendency) has also been noted; namely, the retarded child's reluctance and wariness to interact with adults in many situations (Hirsh, 1959; Sarason & Gladwin, 1958; Wellman, 1938; Woodward, 1960). This orientation towards adults (which the author has labeled the negative-reaction tendency) appears capable of explaining certain differences between retardates and normals reported by Kounin, differences that have heretofore been attributed to the greater cognitive rigidity of retarded individuals. Kounin employed a cosatiation type task as one measure of rigidity. In this type of task the subject is instructed to perform a response and is allowed to continue until he wishes to stop. He is then instructed to perform a highly similar response until again satiated. The cosatiation score is the measure of the degree to which performance on the first task influences performance on the second task. Both the theoretical positions of Kounin, on the one hand, and Stevenson and Zigler, on the other, predicted that feebleminded subjects would play task two longer, after being satiated on task one, than would normal subjects. However, neither of these positions appears capable of explaining the recurring finding (Kounin, 1941; Zigler, 1958; Zigler et al., 1958) that feebleminded subjects under certain conditions perform longer on task two than on task one.

In an effort to explain the longer playing times of retardates on task two than on task one, Zigler (1958) advanced the following hypothesis:

> Institutionalized feebleminded subjects begin task one with a positive-reaction tendency higher than that of normal subjects. This higher positive-reaction tendency is due to the higher motivation of feebleminded subjects to interact with an approving adult. At the same time feebleminded subjects begin task one with a negative-reaction tendency higher than that of normal subjects. This higher negative-reaction tendency is due to a wariness of adults which stems from the more frequent negative encounters that feebleminded subjects experience at the hands of adults. If task one is given under a support condition, the subject's negative-reaction tendency is reduced more during task one than is his positive-reaction tendency.

The institutionalized child learns during task one that the experimenter is not like other strange adults he has encountered who have initiated painful experiences (physical examinations, shots, etc.) with supportive comments. This reappraisal of the experimental situation results in a reduction of the negative-reaction tendency. When the deprived child is then switched to task two, he meets it with a positive-reaction tendency which has been reduced less than has been his negative tendency. The result then is that his performance on task two is lengthier than it was on task one. The finding that normal children exhibit a decrease in length of performance during task two as compared to task one follows if one assumes that normal children have a relatively low negative-reaction tendency when they begin task one. When normal children are switched to task two, it is the positive-reaction tendency which has been reduced more through fatigue and satiation effects than any negative-reaction tendency they might have had. The result here would be a briefer performance on task two than on task one.

Thus I have suggested that the cosatiation score mirrors motivational determinants rather than the inherent rigidity of individuals. This view was tested in a study by Shallenberger and Zigler (1961). The two-part experimental

task employed to obtain cosatiation scores was similar to those used in the earlier studies. Shallenberger and Zigler's study differed from the earlier cosatiation studies in that three experimental games preceded the performance on the two-part criterion task. These experimental games were given under two conditions of reinforcement. In a positive reinforcement condition all of the subject's responses met with success, and he was further rewarded with verbal and nonverbal support from the experimenter. It was assumed that this reinforcement condition reduced the negative-reaction tendency the subject brought to the experimental setting. In a negative reinforcement condition all of the subject's responses met with failure and the experimenter further mildly punished the subject by noting his lack of success. It was assumed that this condition of reinforcement increased the negative-reaction tendency of the subject. Two groups of retarded and two groups of normals, all matched on MA, were employed. One normal and one retarded group were given the positive experimental condition, while the other two groups received the negative condition. All subjects were run on the criterion task under identical conditions, i.e., during both part one and part two all subjects received liberal amounts of verbal and nonverbal social reinforcement.

The most striking finding of this study was the confirmation of the prediction that both the normal and retarded groups who received the negative reinforcement condition would evidence a greater increase in time spent on part two over that spent on part one of the criterion task, than would the normal and retarded groups who played the experimental games under the positive reinforcement condition. This difference was such that the two groups receiving the negative condition played part two longer than part one, while the two groups receiving the positive condition played part one longer than part two.

These findings indicate that cosatiation effects are not the product of inherent rigidity. Instead, cosatiation scores appear to be measures of the relative strength of certain motivational variables, i.e., positive- and negative-reaction tendencies.

Thus, the Shallenberger and Zigler study presents further evidence that differences in the performance of retarded and normal individuals of the same MA can be attributed most parsimoniously to the different environmental histories and motivations of these two groups of individuals. The findings of this study offer evidence favoring an extension of ~~this~~ the motivational hypothesis. Whereas the earlier motivational studies emphasized the increased desire to interact with and receive the support of an adult, the Shallenberger and Zigler study demonstrated the role of another motivational variable, the negative-reaction tendency. It would seem that the experiencing of that population of events which has been described as socially depriving gives rise to both an increased desire to interact as well as a wariness to do so.

Another concept advanced by myself and my colleagues to explain differences in performance between normals and retardates of the same MA is that of the reinforcer hierarchy, i.e., for any individual reinforcers can be ordered from most to least effective. While the motivational factors noted previously appear capable of explaining many of the normal-retarded differences found by Kounin, they cannot handle parsimoniously Kounin's findings that retardates evidence greater difficulty than do normals in switching from one sorting principle to another following a request to do so. A close examination of Kounin's procedure on his card-sorting task led me to consider the relative "weakness" for retardates of the reinforcer employed by Kounin to motivate children on this task. The only reinforcer obtained by Kounin's subjects for correctly switching concepts

was whatever reinforcement inheres in being correct. Being correct is probably more reinforcing for the performance of normal than for retarded children, who may value the interaction with and attention of the experimenter much more than the satisfaction derived from performing the task correctly. The hypothesis being suggested here is that if equally effective reinforcers were dispensed to normals and retardates of the same MA for switching concepts, no differences in the ability to switch would be found. Basic to this proposal is the view that for every child there is a reinforcer hierarchy with the particular position of various reinforcers being determined by the developmental level of the child, the frequency with which the reinforcers have been paired with other reinforcers, and the degree to which the child has been deprived of these reinforcers.

Some recent studies also attest to the feasibility of attributing the differences in performance by normals and retardates on a concept-switching task to such differing reinforcer hierarchies rather than to the greater cognitive rigidity of retardates. Terrell, Durkin, and Wiesley (1959) found that middle-class children did better on a discrimination learning task when an intangible rather than a tangible reinforcer was employed, while lower-class children evidenced superior performance in a tangible as opposed to an intangible reinforcement condition. Pertinent here is the fact that institutionalized familial retardates are predominantly drawn from the lowest segment of the lower socioeconomic class (Zigler, 1961). Stevenson and Zigler (1957) found that the retarded are no more rigid than normal subjects on a discrimination reversal learning task when tangible reinforcers are given. This body of evidence suggests that not only retardates but that lower-class children in general would be inferior to middle-class children when ~~such a~~ an intangible reinforcer is employed.

These views were tested in a concept-switching experiment conducted by Zigler and deLabry (1962). This experiment differed from Kounin's in that two conditions of reinforcement were employed. In one condition Kounin's original reinforcer, being right simply for the sake of being right, was used. In a second condition the reinforcer was a tangible reward. Half the subjects in each group received the tangible reinforcer and half received the intangible reinforcer as a reward for switching from one concept in their sorting (either form or color) to the other concept. As predicted, the retarded and normal lower-class children did better in the tangible than in the intangible condition, while the normal middle-class children did somewhat better in the intangible than in the tangible condition. Of central importance here is that when each child was receiving what was for him a highly effective reinforcer, no significant difference in performance was found to be related to either intellectual level or social class.

Another factor frequently noted as a determinant in the performance of the retarded is their high expectancy of failure. This failure expectancy has been viewed as an outgrowth of a lifetime characterized by frequent confrontations with tasks for which the retarded are intellectually ill-equipped to deal.

Experimental work employing success-failure manipulationswith retardates is still somewhat inconsistent. The work of Cromwell (1963) and his students has certainly lent support to the general proposition that retardates have a higher expectancy of failure than do normals. This results in a style of problem-solving for the retardate which causes him to be much more motivated to avoid failure than to achieve success. However, the inconsistent findings (reviewed in Butterfield & Zigler, in pressb) in the success-failure work with retardates suggest that this fairly simple proposition is in need of some further refinement.

These investigators found that both normal and retarded children reacted differently to success and failure experiences as a function of their responsivity to adults, i.e., their desire to gain an adult's support and approval. delete

One problem involved in the success-failure experiments is that the experimental manipulations typically involve very simple, circumscribed experiences of success or failure. They do not seem to constitute an adequate experimental analogue of the lengthy and repeated history of failure assumed for the retardate. Pertinent to this point is Zeaman and House's (1960) finding that following prolonged failure retardates were unable to solve an extremely simple problem although they had previously been able to do so. Fairly clear results are also obtained when the experimenter simply assumes (rather logically in my opinion) that the retardate has such a "failure set," rather than attempting to see how such a set is influenced by one more failure or success experience.

Assuming such a failure set, Stevenson and Zigler (1958) tested the hypothesis that retardates would be willing to "settle for" a lower degree of success than would normal children of the same mental age. These investigators employed a simple position discrimination task involving three knobs which the child could push. Only one knob was reinforced, with the degree of reinforcement for the three reinforcement conditions employed being 100 percent, random 66 percent, or random 33 percent. Maximizing behavior on such a task would involve pushing only the reinforced knob on every trial. As might be expected, such maximizing behavior was exhibited by both normal and retarded children (matched on MA) who received 100 percent reinforcement. As had previously been found with adults, normal children did not evidence maximizing behavior in the two partial reinforcement conditions but rather tended to match reward probabilities, i.e., the 33 percent and 66 percent reinforcement conditions, resulting in the child

selecting the correct knob on a little more than 33 and 66 percent of the trials, respectively.

Goodnow (1955), in an analysis of the determinants of choice behavior of this type, has suggested that one of the conditions influencing whether or not a child will maximize his guesses of the more frequently reinforced stimulus is the level of success a child will accept in the task. Goodnow suggests that maximizing behavior will be found when a child will accept less than 100 percent success as a good final outcome, while other distributions of choices will be found when a child has an interest in 100 percent success or in a level of success which is greater than that allowed in the situation.

On the basis of this analysis, it may be hypothesized that different types of behavior will be obtained with children who differ in the degree of success that they have learned to expect. Normal children such as those used by Stevenson and Zigler may be assumed to have learned, on the basis of their everyday experience, to expect a high degree of success. Probability matching rather than maximizing behavior would be predicted for these children. Institutionalized retarded children, however, may be assumed to have learned to expect and to settle for lower degrees of success. These children, therefore, would be predicted to maximize their choices of the reinforced stimulus to a greater degree than would normal children. This, in fact, was what Stevenson and Zigler found. Retardates in both the 33 and 66 percent reinforcement conditions evidenced more maximizing behavior than did their normal MA controls. ~~counterparts~~.

An alternative explanation of the Zigler and Stevenson findings should be noted. It could be argued that the greater tendency of retarded as compared to normal subjects to "stick" with the partially reinforced knob did not reflect

the lower expectancy of success of the retarded but rather their greater rigidity. In an effort to further validate the expectancy-of-reinforcement hypothesis, Stevenson and Zigler (1958) conducted another experiment involving two groups of normal children performing on the same knob pressing task. Prior to performing on this task, one group received 33 percent reinforcement on their responses across three nonlearning games. The other group received 100 percent reinforcement. Both groups then played the position discrimination knob pressing task under a 66 percent random reinforcement schedule. As predicted from the expectancy-of-reinforcement hypothesis, the children in the 100 percent pretraining condition showed a significantly lower frequency of choice to the reinforced knob than did children who had received the 33 percent pretraining condition. We thus see again that if normal children receive the experimental analogue of the real-life experiences of retardates they behave in much the same manner as do retardates. The conclusion here again seems to be that certain atypical behavior patterns of retardates are due to certain life experiences rather than to organismic factors which somehow inhere in mental retardation.

I am afraid that time does not permit me to discuss some of our more recent work dealing with other motivational and stylistic variables which may account for why the retarded child behaves differently than the normal child of the same MA. However, the work outlined in this paper appears to have provided support, in varying degrees, for the following five hypotheses:

1. Institutionalized retarded children tend to have been relatively deprived of adult contact and approval and hence have a higher motivation to secure such contact and approval than do normal children.
2. While retarded children have a higher positive-reaction tendency than do normal children, due to a higher motivation to interact with

an approving adult, they also have a higher negative-reaction tendency. This higher negative-reaction tendency is the result of a wariness which stems from the more frequent negative encounters that retarded children experience at the hands of adults.

3. The motive structure of the institutionalized retardate is influenced by an interaction ~~of~~ effect between pre-institutional social history and the effect of institutionalization. This effect is made complex by the fact that institutionalization does not constitute a homogeneous psychological variable.

4. The positions of various reinforcers in a reinforcer hierarchy differ as a function of environmental events. Due to environmental differences experienced by institutionalized retarded children, the positions of reinforcers in their reinforcer hierarchy will differ from the positions of the same reinforcers in the reinforcer hierarchy of normal children.

5. Institutionalized retarded children have learned to expect and settle for lower degrees of success than have normal children.

It is my view that the psychological processes underlying each of these hypotheses more often operate in combination with one another than in isolation. This is merely to assert that the behavior of the retarded child on any task is a complex and multiply determined phenomenon. This view is congruent with my overall position and stands in opposition to those efforts which have attempted to encompass such behavior by postulating some single inherent deficiency.

References

Butterfield, E. C., & Zigler, E. The influence of differing institutional climates on the effectiveness of social reinforcement in the mentally retarded. American Journal of Mental Deficiency, in press. (a)

Butterfield, E. C., & Zigler, E. The effects of success and failure on the discrimination learning of normal and retarded children, Journal of Abnormal Psychology, in press. (b)

Clark, L, P. The nature and treatment of amentia. Baltimore: Wood, 1933.

Cromwell, R. L. A social learning approach to mental retardation. In N. R. Ellis (Ed.) Handbook of mental retardation. New York: McGraw-Hill, 1963, Pp. 41-91.

Ellis, N, R. The stimulus trace and behavioral inadequacy. In N. R. Ellis (Ed.) Handbook of mental deficiency. New York: McGraw-Hill, 1963, Pp. 134-158.

Goldstein, K. Concerning rigidity. Character and Personality, 1943, 11, 209-226.

Goodnow, J. J. Determinants of choice distribution in two-choice situations. American Journal of Psychology, 1955, 68, 106-116.

Green, C., & Zigler, E. Social deprivation and the performance of retarded and normal children on a satiation type task. Child Development, 1962, 33, 499-508.

Hirsh, E. A. The adaptive significance of commonly described behavior of the mentally retarded. American Journal of Mental Deficiency, 1959, 63, 639-646.

Kounin, J. Experimental studies of rigidity. I. The measurement of rigidity in normal and feebleminded persons. Character and Personality, 1941, 9, 251-273.

Lewin, K. A dynamic theory of personality. New York: McGraw-Hill, 1936.

Luria, A. R. Problems of higher nervous activity in the normal and nonnormal child. Moscow: Akad. Pedag. Nauk RSFSR, 1956.

O'Connor, N., & Hermelin, B. Discrimination and reversal learning in imbeciles. Journal of Abnormal and Social Psychology, 1959, 59, 409-413.

Sarason, S. B. Psychological problems in mental deficiency, (2nd ed.) New York: Harper, 1953.

Sarason, S. B., & Gladwin, T. Psychological and cultural problems in mental subnormality: a review of research. Genetic Psychology Monographs, 1958, 57, 7-269.

Shallenberger, P., & Zigler, E. Rigidity, negative reaction tendencies, and cosatiation effects in normal and feebleminded children, Journal of Abnormal and Social Psychology, 1961, 63, 20-26.

Siegel, P., & Foshee, J. Molar variability in the mentally defective. Journal of Abnormal and Social Psychology, 1960, 60, 141-143.

Skeels, H. M., Updegraff, R., Wellman, B. L., & Williams, H. M. A study of environmental stimulation, an orphanage preschool project. University of Iowa Studies in Child Welfare, 1938, 15, No. 4.

Spitz, H. H. Field theory in mental deficiency. In N. R. Ellis (Ed.) Handbook of mental deficiency. New York: McGraw-Hill, 1963, Pp. 11-40.

Stevenson, H., & Zigler, E. Discrimination learning and rigidity in normal and feebleminded individuals. Journal of Personality, 1957, 25, 699-711.

Stevenson, H., & Zigler, E. Probability learning in children. Journal of Experimental Psychology, 1958, 56, 185-192.

Terrell, G., Jr., Durkin, K., & Wiesley, M. Social class and the nature of the incentive in discrimination learning. Journal of Abnormal and Social Psychology, 1959, 59, 270-272.

Wellman, B. L. Guiding mental development. Childhood Education, 1938, 15, 108-112.

Woodward, M. Early experiences and later social responses of severely subnormal children. British Journal of Medical Psychology, 1960, 33, 123-132.

Zeaman, D. Discrimination learning in retardates. Training School Bulletin, 1959, 56, 62-67.

Zeaman, D., & House, B. J. Approach and avoidance in the discrimination learning of retardates. In D. Zeaman et al., Learning and transfer in mental defectives. Progress rep. No. 2, NIMH USPHS, 1960. Res. Grant M-1099 to University of Connecticut, Pp. 32-70.

Zigler, E. The effect of pre-institutional social deprivation on the performance of feebleminded children. Unpublished doctoral dissertation. University of Texas, 1958.

Zigler, E. Social deprivation and rigidity in the performance of feebleminded children. Journal of Abnormal and Social Psychology, 1961, 62, 413-421.

Zigler, E. Rigidity and social reinforcement effects in the performance of institutionalized and noninstitutionalized normal and retarded children. Journal of Personality, 1963, 31, 258-269.

Zigler, E., & deLabry, J. Concept-switching in middle-class, lower-class, and retarded children. Journal of Abnormal and Social Psychology, 1962, 65, 267-273.

Zigler, E., Hodgden, L., & Stevenson, H. The effect of support on the performance of normal and feebleminded children. Journal of Personality, 1958, 26, 106-122.

Zigler, E., & Williams, J. Institutionalization and the effectiveness of social reinforcement: a three-year follow-up study. Journal of Abnormal and Social Psychology, 1963, 66, 197-205.

Footnote

[1]Much of the research reported in this paper was supported by grants from the National Institute of Mental Health, the Social Science Research Council, and by the Gunnar Dybwad Award of the National Association for Retarded Children.